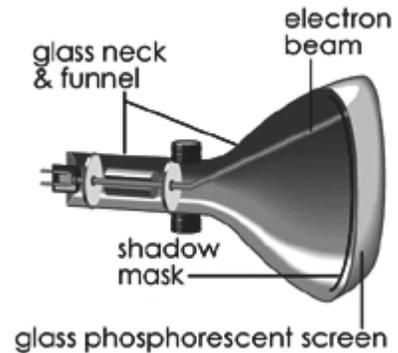


Used Televisions and Computer Monitors

What is a Cathode Ray Tube?

Cathode Ray Tubes (CRTs) are the vacuum tubes or video displays found in most televisions and older computer monitors. CRTs consist of a phosphorescent glass screen, a shadow mask, and a glass funnel and neck. A picture is created when electrons travel from an electron gun (housed within the neck) to the screen.



Why are CRTs of concern?

Harmful radiation is generated when an image is created on a CRT screen. In order to shield viewers from this radiation, a substantial amount of lead is incorporated into the glass used to manufacture the various glass components of a CRT (approximately 4 pounds of lead per CRT). It is this high lead concentration, coupled with the rapid increase in volume of discarded electronics, which make waste CRTs a health and environmental concern. Exposure to lead can cause adverse health effects such as behavioral problems, learning disabilities, and seizures. Since lead affects the central nervous system, children under age 6 (with developing nervous systems) are at a higher risk.

How are CRTs regulated?

Due to the large amount of lead found in CRT glass, and the arsenic, cadmium, mercury and other heavy metals used in TV and computer circuit boards, it is important to ensure that CRTs and other electronic devices are disposed of properly. Studies have shown that **color CRTs** in particular contain enough lead to exceed regulatory levels for hazardous waste by a considerable margin. As such, the Vermont Department of Environmental Conservation (DEC) presumes that all waste color CRTs generated by businesses and municipalities are subject to regulation under the Universal Waste Management Standards found in subchapter 8 of the Vermont Hazardous Waste Management Regulations (VHWMR).

Although **household-generated** wastes are exempt from the VHWMR, the DEC recommends that homeowners manage their waste CRTs through a local household hazardous waste collection event.

Color CRTs that have been collected, but still must be evaluated to determine if they can be reused or repaired are not considered waste and therefore are not subject to the VHWMR provided:

- 1) The CRTs are managed to prevent breakage and cosmetic damage;
- 2) The CRTs remain intact;
- 3) The CRTs are stored within a structure or transportation unit such that the CRTs are protected from precipitation; and
- 4) The person in control of the CRTs plans to evaluate the CRTs for reuse or repair on-site, or send the CRTs off-site for such evaluation.

Continued ►

Environmental Fact Sheet: Used Televisions and Computer Monitors

How must waste color CRTs be managed?

In general, waste color CRTs generated by Vermont businesses and municipalities must be:

- ✓ Managed in a way that prevents breakage, or releases to the environment;
- ✓ Packaged in a manner adequate to prevent breakage during transportation, and when necessary during storage and handling. Such packaging must lack evidence of damage that could cause breakage under reasonably foreseeable conditions;
- ✓ Stored within a structure or transportation unit such that the CRTs are protected from precipitation;
- ✓ Placed in a closed container if the CRTs show evidence of damage that could cause a release of glass particles under reasonably foreseeable conditions. The container must be structurally sound, and compatible with the broken CRT(s); and
- ✓ Labeled or marked with one of the following phrases: "Universal Waste-Cathode Ray Tube(s)," or "Waste Cathode Ray Tube(s)," or "Used Cathode Ray Tube(s)" or "Universal Waste-CRT(s)," or "Waste CRT(s)," or "Used CRT(s)."

For general information about Vermont's Universal Waste Management Standards, refer to the "Universal Waste" fact sheet at <http://www.anr.state.vt.us/dec/wastediv/rcra/assist.htm>

How are waste monochrome CRTs and Flat Panel Displays (FPDs) regulated?

Older monochrome (black and white) CRTs contain much less lead than color CRTs, and generally do not exceed regulatory levels for hazardous waste. FPDs, which do not contain lead, do in some cases contain small amounts of encapsulated mercury. According to Vermont law, all mercury-added products must be labeled as containing mercury and are prohibited from disposal in Vermont solid waste landfills. Although monochrome CRTs can be managed as solid waste, the Vermont DEC strongly recommends keeping them out of the municipal solid wastestream in order to prevent the heavy metals contained in those devices from being released to the environment (e.g., in landfills or through incineration).

How can waste CRTs and FPDs be managed?

Individuals and businesses should contact their local Solid Waste District / Alliance (listed below), or Town Clerk for information about managing waste electronics. In addition, many non-profit and private organizations offer recycling services. A listing of these organizations can be found at:

<http://www.anr.state.vt.us/dec/wastediv/R3/computers.htm>

Vermont Solid Waste Organizations

Addison County Solid Waste District 802-388-2333	Northeast Kingdom Waste Management District 1-800-734-4602 or 802-626-3532
Bennington Regional Planning Commission 802-375-2576	Northwest Vermont Solid Waste District 802-524-5986
Central Vermont Solid Waste District 1-800-730-9475 or 802-229-9383	Rutland County Solid Waste District 802-775-7209 or 802-773-4083
Chittenden Solid Waste District 802-872-8111	Solid Waste Alliance Communities 518-854-9702
Greater Upper Valley Solid Waste District 802-296-3688	S. Windsor/Windham County Solid Waste Mgmt Dist. 603-543-1201 or 802-885-5827
Lamoille Regional Solid Waste District 802-888-7317	White River Alliance 802-234-9340
Mad River Solid Waste Alliance 802-244-7373	Windham Solid Waste District 802-257-0272

For more information contact:

VTDEC-Waste Management Division
1 National Life Drive – Davis 1
Montpelier, VT 05620-3704
802-828-1138

VTDEC-Environmental Assistance Office
1 National Life Drive – Davis 1
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